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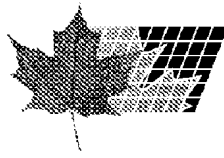
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(54) TUTEUR POUR LESIONS BIFURQUEES

(54) BIFSTENT

(57)

In Interventional Cardiology it is often a challenge to stent bifurcation lesions because of the potential for loss of side branches. In this invention, the incomplete coil design on each side allows each branch of the bifurcation to be accessed without compromising the other branch. This invention relates to a new type of coronary stent for angioplasty of bifurcation lesions. It has been common with previous stems to have wide spacing between coils to allow access to side branches with the guide wire but really no current stent has this incomplete coil design to allow complete access to side branches. The currently available stents often cause loss of side branches with the resultant undesirable consequences such as myocardial infarction or ischemia. I have found that the current disadvantages may be overcome by creating a stent with a coil design on one side and then just leaving the opposite side without any metal so that the side branch may be accessed with the second stent. This second stent is a mirror of the first stent with coils on the opposite side and free space again facing the bifurcation. In terms of the specific stent design it will be a coil design. I refer to Figure 1 which illustrates the current problem with "stent jail" where the stent covers the area of bifurcation. Figure 2 illustrates the complete coil portion going into the incomplete coil portion. Please note in Figure 3 how portion "A" of the stent is deployed first. Then portion "B" is deployed down the opposite arm of the bifurcation. The stent will be made of stainless steel. It will come in lengths of 10, 20, 30 and 40 mm. It will be delivered on a minimally compliant balloon without a sheath. The marker positions will be on either ends of the stent. "\*/#/#/#/\*" will be how it will be marked. In the embodiment in the figures it is apparent how the side branch is protected as there is no metal to obstruct it.



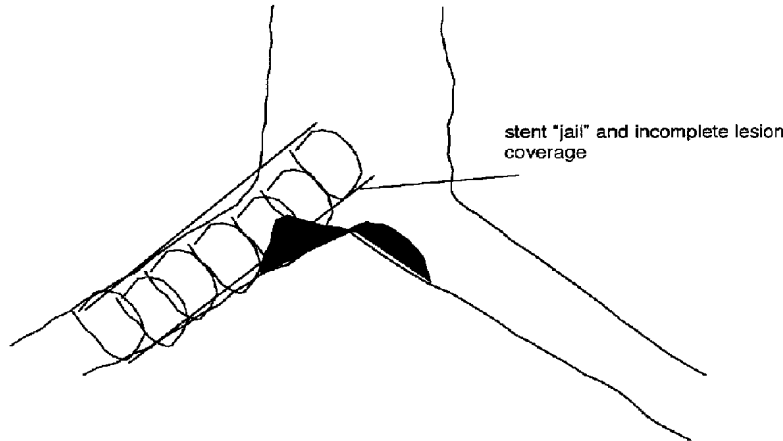
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### Abstract

In Interventional Cardiology it is often a challenge to stent bifurcation lesions because of the potential for loss of side branches. In this invention, the incomplete coil design on each side allows each branch of the bifurcation to be accessed without compromising the other branch.

This invention relates to a new type of coronary stent for angioplasty of bifurcation lesions.

It has been common with previous stents to have wide spacing between coils to allow access to side branches with the guide wire but really no current stent has this incomplete coil design to allow complete access to side branches. The currently available stents often cause loss of side branches with the resultant undesirable consequences such as myocardial infarction or ischemia.

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leaving the opposite side without any metal so that the side branch may be accessed with the second stent. This second stent is a mirror of the first stent with coils on the opposite side and free space again facing the bifurcation. In terms of the specific stent design it will be a coil design. I refer to Figure 1 which illustrates the current problem with "stent jail" where the stent covers the area of bifurcation. Figure 2 illustrates the complete coil portion going into the incomplete coil portion. Please note in Figure 3 how portion "A" of the stent is deployed first. Then portion "B" is deployed down the opposite arm of the bifurcation.

The stent will be made of stainless steel. It will come in lengths of 10, 20, 30 and 40 mm. It will be delivered on a minimally compliant balloon without a sheath. The marker positions will be on either ends of the stent. \*/#/#/#/#/\* will be how it will be marked. In the embodiment in the figures it is apparent how the side branch is protected as there is no metal to obstruct it.

## The "Bifstent"-A new stent for bifurcation lesions

Over 500,000 angioplasty procedures are performed yearly in North America alone. Stents are being used with increased frequency and in some Canadian labs 70-80% of all angioplasties receive stents. The "bifstent" I designed is a unique stent design that allows for stenting of bifurcation lesions. This is made possible by the fact that there is an incomplete coil design that covers the common area of the vessel then there is a complete coil aspect of the stent that goes into the bifurcated area of the vessel in question.

The practical advantage of this invention is that it can be used on coronary arterial lesions that bifurcate. Ideally, a double wire system would be used and then a "bifstent" would be deployed on either side of the bifurcation using the technique of "kissing stent". The problem of "stent jail" would be avoided as the side branch is no longer jailed by a complete coiled system. This stent is of stainless steel design and has widespread applicability. One limitation would be the degree of coverage that is to be extended to the main vessel and to the bifurcation. This can be adjusted by having different percentages of the "bifstent" complete coil vs. incomplete coil.

I refer you to figure 1 where you can see the incomplete coil portion and the complete coil portion of the stent with the spine. Figure 2 illustrates the existing problem with the currently available stents and "stent jail". Figure 3 illustrates the advantage of the "bifstent" in that a part of it is incomplete coil and a part of it is complete coil.

I wish to apply for patents in Canada, the United States, Australia, Germany, France, Italy, the United Kingdom, the Netherlands, Sweden, Switzerland, Saudi

Arabia, Kuwait, Libya, China and Egypt.

I am the sole applicant for the patent and my name and address is as follows:

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:  
A tool to take the form of a coronary stent, that allows unprecedented access to side branches as a result of its unique complete then incomplete coil design.

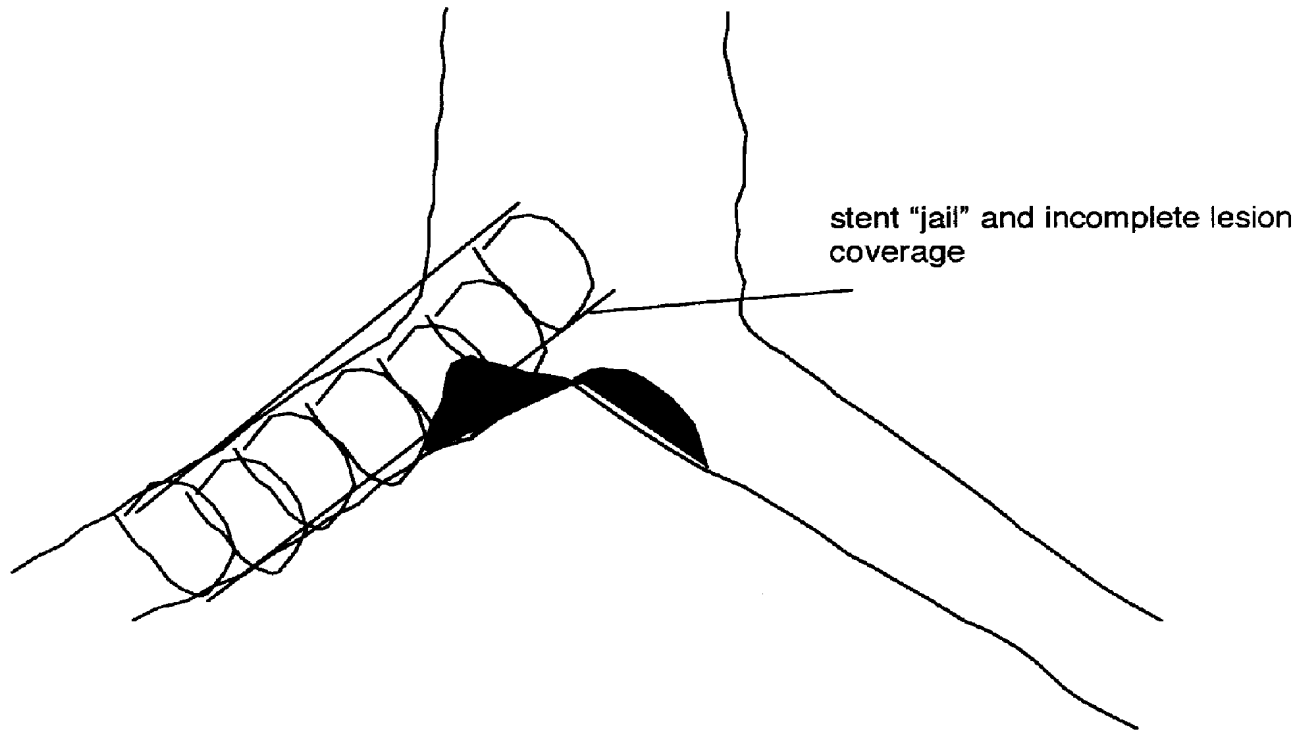


Fig. 1



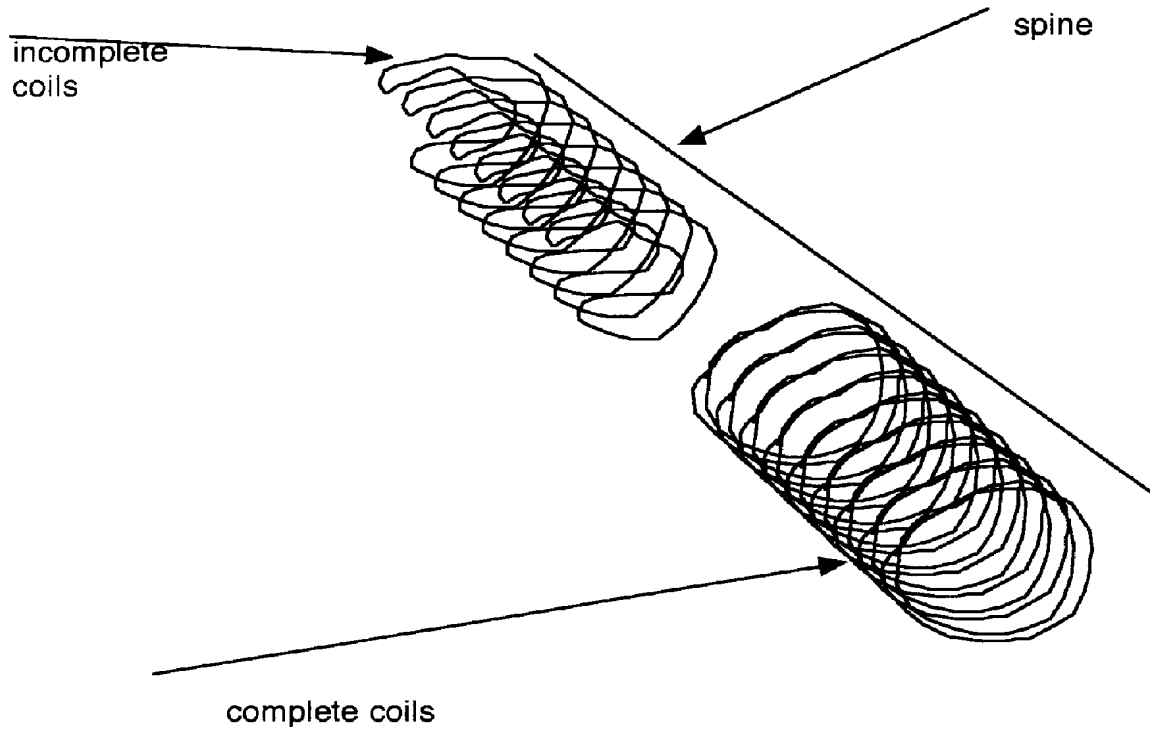


Fig 2.

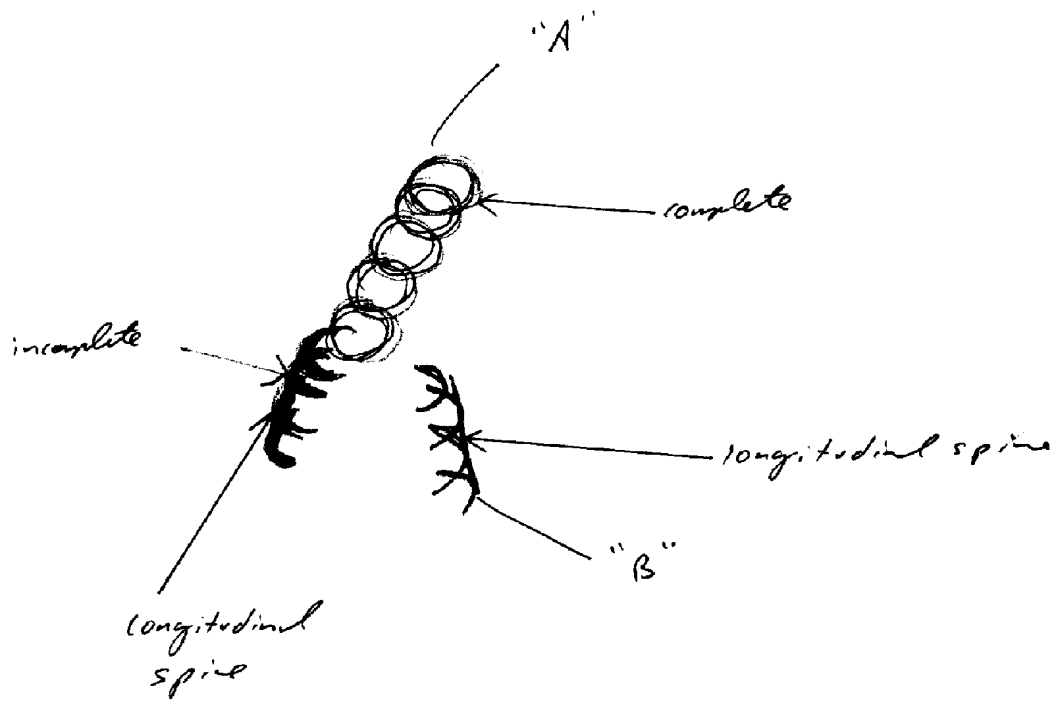


Fig. 3.